

Chelomalpheus koreanus, a new genus and species of snapping shrimp from Korea (Crustacea: Decapoda: Alpheidae)

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Abstract.—*Chelomalpheus koreanus*, a new genus and species, is described on the basis of three specimens collected from the Yellow Sea, Korea. The new genus differs from all other genera of Alpheidae by the combination of the following characteristics: the presence of a notch on the inferior margin of carapace, the presence of an articulated movable plate on the posteroventral margin of the sixth abdominal somite, and the presence of roundly elongate immovable teeth on the transverse suture of the uropodal exopod.

During recent collections in a mud-sandy beach in the Yellow Sea, Korea, specimens of a new genus and species of the family Alpheidae were found. The new genus and species is described herein. Holotype and ovigerous female paratype are deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM).

Chelomalpheus, new genus

Definition.—General body form as usual for members of the family Alpheidae.

Body slightly compressed, surfaces smooth and glabrous.

Rostrum very small and acute. Orbital hoods absent. Carapace with anteroventral margin bluntly rounded, not produced anteriorly; inferior margin with a broad notch at middle part; cardiac notch well developed.

Eyes well developed, cornea fully exposed dorsally and laterally.

Antennules slender. Stylocerite falling slightly short of middle of second segment. Scaphocerite normal, with distal spine and inner blade. Carapocerite slightly overreaching distal end of antennular peduncle. Basicerite with sharp lateral spine.

Mouthparts similar to those in *Alpheus* Fabricius, 1798 (Kim & Abele 1988). Third

maxilliped with coxa bearing one arthrobranch.

First pereopods similar in shape and size, lacking sexual dimorphism. Chela elongate, deflexed below near base of immovable finger. Movable finger shallowly arched along superior margin, bearing 2 blunt teeth on inferior margin. Immobile finger with 1 blunt tooth at middle of superior margin and another small tooth proximally.

Second pereopods equal, similar, and slender. Carpus 5-segmented: first segment as long as fifth, about 2 times as long as second; second, third, and fourth almost equal in size.

Ambulatory pereopods slender, dactyli simple. Third pereopod rather slender; dactylus acute, slender; ischium with 1 movable spine.

Abdomen with pleura of first four segments broadly rounded in both sexes. Sixth segment with posteroventral margin with articulated, movable triangular plate. Appendix masculina far overreaching distal end of appendix interna.

Telson slender, with 2 pairs of dorsal spines located laterally.

Uropodal exopod bearing 1 slender movable spine laterally; transverse suture (di-aeresis) with about 10 immovable teeth and ending in small immovable spine on lateral margin.

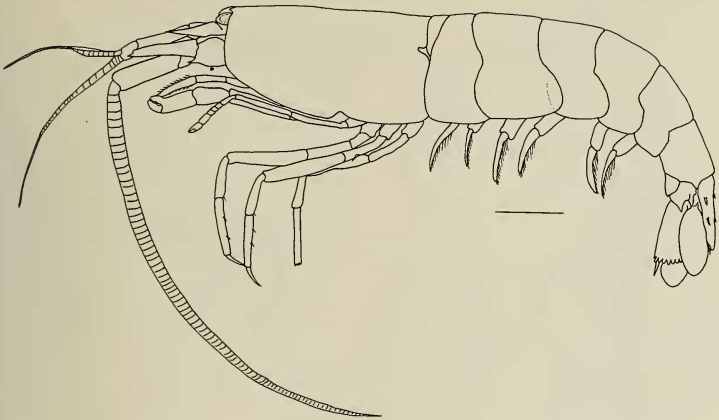


Fig. 1. *Chelomalpheus koreanus*, new species, holotype male, USNM 285514, cl 4.7 mm, lateral view. Scale, 2.0 mm.

Epipods present on first three pereopods.

Type species.—*Chelomalpheus koreanus*, new species.

Etymology.—The generic name is derived from the Greek word “cheloma,” meaning “notch,” indicating the presence of a notch on the inferior margin of the carapace.

Chelomalpheus koreanus, new species
Figs. 1–3

Material examined.—Holotype (USNM 285514): Male, cl 4.7 mm, Daechon, the Yellow Sea, Korea (36°19'05"N, 126°30'25"E), from pool dug in mud-sandy beach, coll. Sa Heung Kim, 6 Jun 1996. Paratypes: 1 male (cl 4.0 mm), 1 ovigerous female (cl 4.5 mm, USNM 285515), same locality as holotype.

Description.—Body (Fig. 1) slightly compressed, surfaces smooth and glabrous.

Rostrum (Figs. 1, 3A) very small, acute, and triangular in dorsal view, and clearly carinate for short distance posteriorly.

Carapace (Fig. 1) with anterior margin shallowly concave near base of rostrum and

then almost straight; anteroventral margin bluntly rounded, not produced anteriorly; inferior margin of carapace with a broad notch at middle part near basis of second pereopod; cardiac notch well developed.

Eyes well developed, cornea fully exposed dorsally and laterally.

Antennules (Fig. 3A) slender. First segment longer than wide, with shallow carina extending from ventral inner margin. Second segment elongate, about 3.3 times as long as broad, 1.9 times as long as visible part of first segment and 3 times as long as third segment. Stylocerite narrowing to long sharp point, falling slightly short of middle of second segment.

Scaphocerite slightly more than 3 times as long as broad. Lateral margin almost straight. Distal spine directing forward, overreaching distal margin of second antennular segment. Inner blade broadly rounded distally, with no cleft between inner blade and distal spine.

Carpocerite slightly overreaching distal end of antennular peduncle. Basicerite with broadly based, sharp, lateral spine.

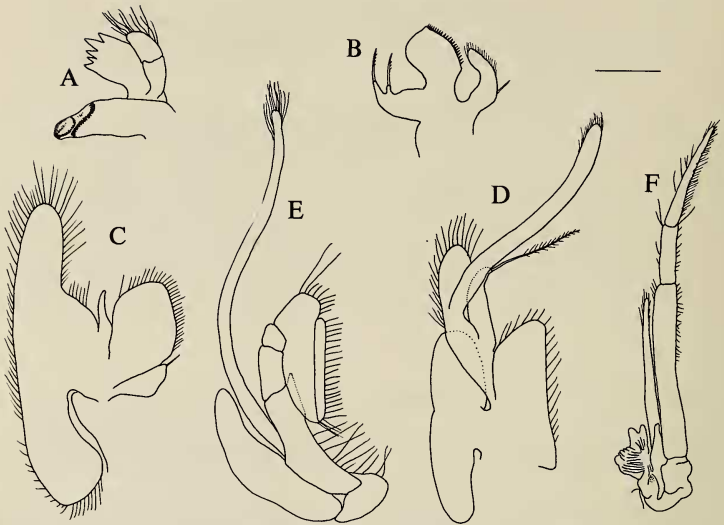


Fig. 2. *Chelomalpheus koreanus*, new species, holotype male, USNM 285514, cl 4.7 mm: A, mandible; B, first maxilla; C, second maxilla; D, first maxilliped; E, second maxilliped; F, third maxilliped. Scale = 1 mm; F, 0.5 mm: A, B, C, D, E.

Mandible (Fig. 2A) with incisor process rather broad and bearing 5 teeth on distal margin; molar process bearing some ridges provided with beds of soft hairs; palp consisting of 2 distinct segments. First maxilla (Fig. 2B) with upper endite broad, bearing spinules on distolateral margin; endopod bilobed, each lobe bearing single strong seta. Second maxilla (Fig. 2C) with upper endite entire, provided with setae; lower endite small, bearing 1 seta; endopod narrow and simple; scaphognathite large, anterior lobe narrow, posterior lobe large. First maxilliped (Fig. 2D) with endites entire, bearing row of setae on marginal region; exopod with exopodal (caridean) lobe narrow but distinct; endopod slender with single, long, simple seta on distal margin; epipod large, elongated oval shape with lateral margin broadly concave. Second maxilliped (Fig. 2E) with ultimate segment of endopod nar-

row, attached as strip to penultimate segment; exopod well developed; epipod fairly large and elongate. Third maxilliped (Fig. 2F) slender, extending to almost distal end of carpocerite; ultimate segment tapering distally with 3-4 small spinules distally, about 1.8 times as long as penultimate; penultimate segment rather elongate, about 4 times as long as broad near distal end; antepenultimate segment rather elongate, about 7.8 times as long as broad; exopod reaching to far short of distal end of antepenultimate segment; coxa with 1 arthrobranch.

First pereopods (Fig. 3B, C) similar in shape and size and no sexual dimorphism, almost reaching to tip of lateral spine of scaphocerite. Chela (Fig. 3D) elongate, 3.6 times as long as broad, deflexed below near base of immovable finger; fingers slightly deflexed internally, occupying less than dis-

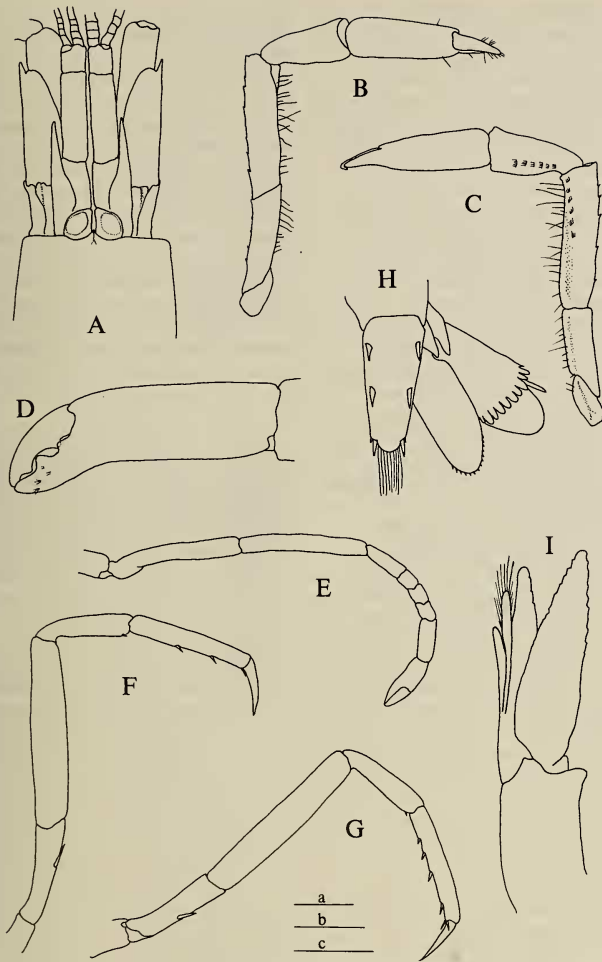


Fig. 3. *Chelomalpheus koreanus*, new species, holotype male, USNM 285514, cl 4.7 mm: A, anterior region, dorsal view; B, right first pereopod, outer view; C, same, inner view; D, same, chela, outer view; E, right second pereopod; F, right third pereopod; G, right fourth pereopod; H, telson and right uropod; I, right second pleopod. Scale a = 1 mm: A; scale b = 1 mm: E, H, 0.5 mm: D, I; scale c = 1 mm: B, C, F, G.

tal 0.3 of chela; palm entire, subcylindrical, about 2.6 times as long as broad; movable finger shallowly arched along superior margin, bearing 2 blunt teeth on inferior margin; immovable finger with 1 blunt tooth at middle of superior margin fitting space between 2 immovable teeth of movable finger and another small tooth proximally. Carpus more than 2 times as long as broad near distal end with about 6 short tufts of setae along inferior margin. Merus about 4 times as long as broad; superior margin with about 6 immovable small spinules along superior margin and with about 6 short tufts of setae along inferior margin. Ischium about 2.5 times as long as broad, with 5–6 very small spinules along superior margin.

Second pereopods (Fig. 3E) equal, similar, and slender, not reaching to lateral spine of scaphocerite. Fingers of chela about as long as palm. Carpus 5-segmented: first segment about 2 times as long as second; second, third, fourth almost equal in size; fifth segment almost as long as first.

Third pereopod (Fig. 3F) rather slender. Dactylus acute, slender. Propodus about 6.1 times as long as broad, about 2.4 times as long as dactylus and 1.3 times as long as carpus, with 2 small movable spines on inferior margin and a pair at distal end. Carpus with 1 small movable spine at distal end of inferior margin, 4 times as long as broad. Merus about 5.3 times as long as broad, 2 times as long as carpus, unarmed. Ischium with 1 rather strong movable spine.

Fourth pereopod (Fig. 3G) almost same as third pereopod. Propodus with 4 movable spines on inferior margin and a pair at distal end. Ischium with 1 rather strong movable spine.

Fifth pereopod similar to fourth pereopod, but much more slender. Ischium with no movable spine.

Abdomen (Fig. 1) with pleura of first four segments broadly rounded in both sexes. Pleuron of fifth somite subrectangular on posteroventral margin. Sixth segment almost as long as fifth, posterolateral margin acute, posteroventral margin with articulat-

ed, fairly large, movable, triangular plate. Appendix masculina (Fig. 3I) far overreaching distal end of appendix interna.

Telson (Fig. 3H) slender, about 2.3 times as long as broad at anterior end, lateral margins almost straight; posterior margin convex; 2 pairs of dorsal spines located rather laterally, at about 0.2 and 0.5 of telson length; posterior margin with 2 pairs of movable spines located laterally, lateral spine very small, equal to 0.2 of length of medial.

Uropodal endopod (Fig. 3H) bearing small spinules on distal margin. Uropodal exopod bearing 1 slender movable spine laterally; transverse suture (diaeresis) with about 10 roundly elongate immovable teeth and ending in small immovable spine on lateral margin.

Variation.—Little variation exists among the three specimens. In males, the notch of the inferior margin of the carapace is deeper compared to the female. In the female, the carapocerite almost reaches to the distal end of antennular peduncle. The number of movable spines on the inferior margin of the propodus in the third and fourth pereopods varies from 2–4 in males.

Etymology.—The specific name is after the Republic of Korea.

Discussion.—The specimens referred to this new genus key out to *Potamalpheops* and *Pseudathanas* in Holthuis' (1993) generic key, though they are easily distinguished from members of any known genus in the family Alpheidae by having a notch on the inferior margin of the carapace. The present specimens obviously do not belong to *Potamalpheops* Powell, 1979 (Bruce 1993, Yeo & Ng 1997) because they lack a tooth behind the eye, nor to *Pseudathanas* Bruce, 1983 because they have immovable teeth instead of a row of movable spines on the transverse suture (diaeresis) of the uropodal exopod. The present new species is easily distinguished from the species of *Athanas* Leach, 1814 by having very short rostrum and by having no supracorneal, extracorneal, and infracorneal spines usually

present with varying degrees of development in *Athanas*. The present new species is also different from the species of *Automate* de Man, 1888 (Chace 1988, Holthuis 1993) in having an articulated movable plate on the posteroventral margin of the sixth abdominal segment. Therefore this shrimp species is easily distinguished from any of the known species of the family Alpheidae by the combination of the following characteristics: the presence of a notch on the inferior margin of carapace; the presence of an articulated plate on the posteroventral margin of sixth abdominal somite; and the presence of roundly elongate immovable teeth on the transverse suture of uropodal exopod.

Acknowledgments

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